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# *TRIFOLIUM NIGRESCENS* (FABACEAE), NEW TO THE TEXAS FLORA

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## ABSTRACT

*Trifolium nigrescens* is documented as naturalized in Texas. A large population was found growing along a highway right-of-way near Huntsville in Walker County, Texas.

**KEY WORDS**: Fabaceae, *Trifolium, Trifolium nigrescens,* Texas, naturalized

A large, naturalized population of *Trifolium nigrescens* Viv. has been discovered in Walker County, Texas. The species has not previously been reported in the state (Correll & Johnston 1970; Hatch et al. 1990; Jones et al. 1997; Turner et al. 2003).

Voucher: **Texas**. Walker Co.: Median of Hwy 30 at intersection with Timberwilde Drive, ca 3 mi W of jct with Interstate 45 on W side of Huntsville, 3 May 2013, *Keith 1034* (TEX, MU).

Figure 1. Large population of *Trifolium nigrescens* in Walker County, Texas.

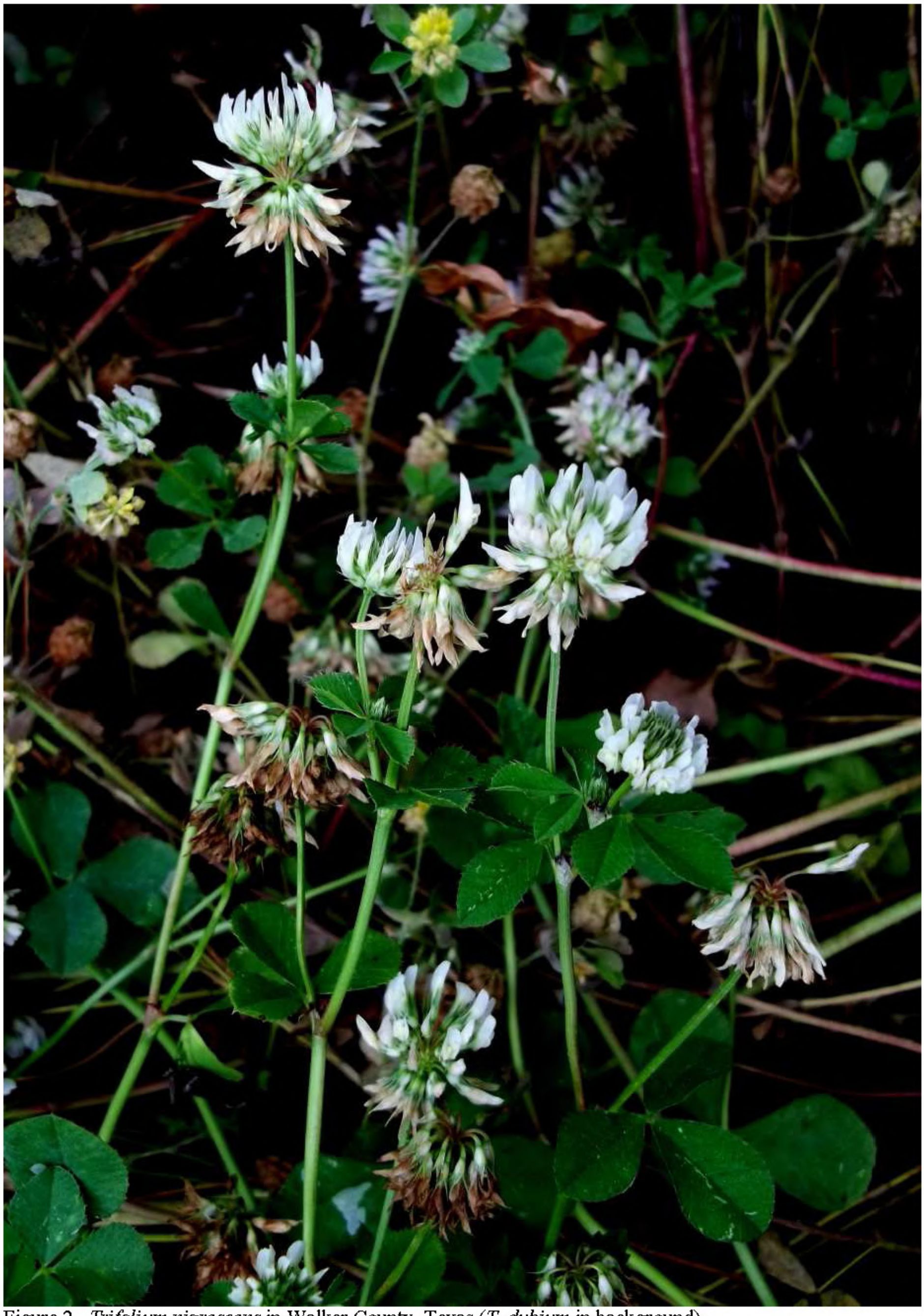

Figure 2. *Trifolium nigrescens* in Walker County, Texas (*T. dubium* in background).

*Trifolium nigrescens* is native to southern Europe and southwestern Asia and has been reported as naturalized in the southeastern USA in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, South Carolina, and Tennessee (Isely 1998; BONAP 2011; USDA, NRCS 2013). The Texas population is the westernmost known for the species, and this report increases the number of native and naturalized species of *Trifolium* in the state to sixteen.

The Texas population of *Trifolium nigrescens* (Figs. 1 and 2), with tens of thousands of plants, was found growing along approximately one kilometer of roadside and median of Hwy 30 west of Huntsville. In Texas, the species most resembles *T. repens* but can be readily distinguished but its upright rather than prostrate habit (Figs. 1 and 2). It is most similar to *T. hybridum*, which has not yet been observed in Texas, although it has been recorded near the borders of Texas with Arkansas, Louisiana, New Mexico, and Oklahoma (Isely 1998; BONAP 2011). It can be separated from *T. hybridum* by its smaller inflorescence of light pink or white flowers (versus pink) and scarious calyx lobe margins and V-shaped sinuses (versus not scarious and broad U-shaped sinuses).

Included below is a key to seventeen species of *Trifolium* most likely to be found in Texas including *T. hybridum*, which has not yet been documented in the state. The key is derived from Isely (1998). Species distributions follow Diamond et al. (1987), Turner et al. (2003), BONAP (2011), and personal observations.

**TRIFOLIUM SPECIES KNOWN AND EXPECTED IN TEXAS**

***Trifolium amphianthum*** Torr. & A. Gray
Not *Trifolium polymorphum* Poir., the South American species, per email communication with Michael Vincent)
***Trifolium arvense*** L.
***Trifolium bejarense*** Moric.
***Trifolium campestre*** Schreber in Sturm
***Trifolium carolinianum*** Michx.
***Trifolium dubium*** Sibthorp
***Trifolium hybridum*** L.
Expected to occcur in Texas
***Trifolium incarnatum*** L.
***Trifolium lappaceum*** L.
***Trifolium mucronatum*** Willd. ex. Spreng.
SYN = *Trifolium arizonicum* E. Greene
SYN = *Trifolium wormskioldii* Lehmann var. *arizonicum* (E. Greene) Barneby
***Trifolium nigrescens*** Viv
***Trifolium pratense*** L.
***Trifolium reflexum*** L.
***Trifolium repens*** L.
***Trifolium resupinatum*** L.
***Trifolium subterraneum*** L.
***Trifolium vesiculosum*** Savi

1. Flowers yellow, common naturalized species.

2. Corolla distinctly striate; inflorescence 0.8–1.3 cm broad with generally 20 or more flowers; petioles of middle leaves greater than length of leaflets ..... **Trifolium campestre**
2. Corolla scarcely striate; inflorescence 0.5–0.8 cm broad with 5–20 flowers, petioles of middle leaves generally shorter than leaflets ..... **Trifolium dubium**

1. Flowers white, pink, purple, red, or bicolored; native or naturalized species.

3. Calyx pubescent.

4. Corolla 4–7 mm long.

5. Corolla resupinate and bright pink; calyx bladdery inflated in fruit; common naturalized species ..... **Trifolium resupinatum**
5. Corolla not resupinate, white or light pink; calyx not inflated in fruit.

6. Corolla shorter than or equal to calyx; inflorescence with a fuzzy appearance; naturalized species currently documented in northeastern Texas ..... **Trifolium arvense**
6. Corolla longer than calyx; species more widespread in eastern half of Texas.

7. Inflorescence initially sessile becoming peduncled and bur-like, corolla white turning light pink; calyx lobes stiffly bristly and plumose with stiff trichomes 1–1.5 mm long that are slightly bulbous at base; rapidly spreading naturalized species .. **Trifolium lappaceum**
7. Inflorescence pedunculate, corolla whitish or lavender commonly turning dull red; calyx lobes lanceolate and subfoliaceous usually with three nerves; common native species ..... **Trifolium carolinianum**

4. Corolla 9–17 mm long.

8. Inflorescence solitary and sessile or subsessile above a pseudo-involucre of two leaves; flowers bright pink or pink-purple; common naturalized species ..... **Trifolium pratense**
8. Inflorescence peduncled; flowers white, light pink, or red; native or naturalized.

9. Flowers distinctly pedicelled; rare native species primarily in northeastern Texas decreasing in many areas of its former range ..... **Trifolium reflexum**
9. Flowers sessile or subsessile; common naturalized species.

10. Inflorescence 2–3 cm wide; flowers white ..... **Trifolium vesiculosum**
10. Inflorescence 1–1.5 cm wide; flowers red ..... **Trifolium incarnatum**

3. Calyx mostly glabrous (some villous hairs may be present at orifice of tube; wide glabrous but ciliate lobes in *T. bejarense*).

11. Inflorescences involucrate by a ring of fused, often deeply toothed or lacerate bracts; native species known only from Jeff Davis County in western Texas ..... **Trifolium mucronatum**
11. Inflorescences not involucrate; native or naturalized species in mostly eastern half of Texas.

12. Flowers white, only 2–5 outer flowers with petals, the remainder sterile; fruiting heads transformed through curvature of peduncle into a humistrate or subterranean bur; rare naturalized species known only from 2 counties in central Texas ..... **Trifolium subterraneum**
12. All flowers with petals, flowers white, pink, or red; fruits not as described above.

13. Flowers sessile or subsessile, white, inflorescence large, 2– 3 cm wide; calyx tube plainly multistriate with 20 or more nerves; naturalized species widespread in eastern Texas ..... **Trifolium vesiculosum**
13. Flowers distinctly pedicellate, pedicels ca. 1 mm or more.

14. Inflorescence of two kinds: those that are pedunculate with pink, purple, light red, or bicolored umbellate, petaliferous flowers, and those at ground level, bearing cleistogamous flowers with reduced petals; plants caespitose, substoloniferous or rhizomatous; increasingly rare native species most recently collected 15 years ago ..... **Trifolium amphianthum**

14. Inflorescence of one kind, bearing white or pink petaliferous flowers.

15. Calyx reticulate-nerved, the lobes > 1 mm in width, ciliate; pedicels villosulous; uncommon native species found in prairies, open post oak woodlands and roadsides generally in the Blackland Prairie and Oak Woods and Prairies Ecoregions ..... **Trifolium bejarense**

15. Calyx not reticulate-nerved, the lobes < 1 mm, not ciliate; pedicels glabrous.

16. Perennial, caespitose to stoloniferous; peduncles from ground level; calyx lobes < length of the tube; abundant naturalized species found throughout Texas ..... **Trifolium repens**

16. Short lived perennial or annual, caulescent; peduncles not from ground level; calyx lobes < or = tube length; rare naturalized species or not yet recorded in Texas.

17. Inflorescence 1–1.5(–2) cm in diameter; calyx lobes proximally scarious-margined, commonly divergently twisted after antithesis, sinuses V-shaped; corolla faint pink, fading to white (or dirty white); currently known from only Walker County ..... **Trifolium nigrescens**

17. Inflorescence 1.5–2.5 cm in diameter; calyx lobes neither scarious-margined nor bent outwards, sinuses broadly U-shaped; corolla distinctly rose-pink; not currently known from Texas but recorded near the borders with Arkansas, Louisiana, New Mexico, and Oklahoma ..... **Trifolium hybridum**

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